

OIL AND GAS DOCKET NO. 04-0239461

THE APPLICATION OF BRIGHAM OIL & GAS, L.P. TO CONSOLIDATE THE HOME RUN (LOWER VICKSBURG), HOME RUN (LOWER VICKSBURG 7), AND HALL-SHELLY (NO. 2 SAND) FIELDS INTO A NEW FIELD AND ADOPT RULES FOR THE (PROPOSED) HOME RUN (VICKSBURG CONS.) FIELD, BROOKS COUNTY, TEXAS

Heard by: Margaret Allen, Technical Hearings Examiner
Mark Helmueller, Hearings Examiner

Procedural history

Application received: April 23, 2004

Hearing held: July 12, 2004

Proposal for decision issued: August 20, 2004

Appearances

<u>Applicant</u>	Representing
George C. Neale	Brigham Oil & Gas, L.P.
Dick Schmidt	
Craig Williams	
Steve Venturatus	
Kenneth Klanika	
<u>Protestants</u>	
Edna G. Guerra	Herself & family
Leonel and Brunilda Garcia	Themselves & family
Jesus Mosqueda	Juanita Mosqueda
Juanita Mosqueda	Herself, Margarito Perez, Anna Lopez, Manuel Perez, Jr, Maria Cantu

EXAMINERS' REPORT AND PROPOSAL FOR DECISION

STATEMENT OF THE CASE

Notice of this hearing was issued under Docket No. 03-0238590, which had to be corrected because Brooks County is in District 4 not District 3. Brigham Oil & Gas, L.P. ("Brigham") is seeking to consolidate the Home Run (Lower Vicksburg), Home Run (Lower Vicksburg 7), and Hall-Shelly (No. 2 Sand) Fields ("subject fields") into a New Field to be known as the Home Run (Vicksburg Cons.) Field ("consolidated field"). Brigham is proposing the following field rules for the new field:

1. Designated interval from 9670' to 12,550' as shown on the log of the Brigham Palmer State 348 Lease, Well No. 2;
2. 330-660' well spacing;

3. 40 acre proration units with 20 acre optional units; and
4. allocation based on acreage, with the allocation formula suspended.

Leonel and Brunilda Garcia, Edna G. Guerra, and Juanita and Jesus Mosqueda ("protestants") which own unleased mineral interests in the area. The protestants also have some interests that are leased to the applicant. The protestants believe that the proposed well spacing will allow Brigham to drill wells too close to their lease lines which will drain reserves from their property.

DISCUSSION OF THE EVIDENCE

Applicant's evidence

Wells in the Home Run (Lower Vicksburg), Home Run (Lower Vicksburg 7) and Hall-Shelly (No. 2 Sand) Fields are interspersed geographically. Numerous wells are already downhole commingled in more than one of these fields under exceptions to Statewide Rule 10.

The Home Run (Lower Vicksburg) Field was discovered in 1999, at a depth of 12,270'. The field has two wells operated by the applicant, and three wells operated by Exxon Mobil Corporation. The Home Run (Lower Vicksburg) Field operates under Statewide Rules and the allocation formula is suspended.

The Home Run (Lower Vicksburg 7) Field was discovered in 2000, at a depth of 11,441'. Field rules specify a designated interval between 11,424' and 11,944' and that allocation be based 95% on deliverability and 5% per well. Statewide spacing and density rules apply. There are five Brigham wells and two Exxon Mobil wells in this field. Three of these wells have already been commingled with the Home Run (Lower Vicksburg) Field and are carried on the proration schedule of that field.

The Hall-Shelly (No. 2 Sand) Oil Field was discovered in 1983, at a depth of 11,514'. There is one oil well operated by Brigham that has a current potential of 5 BOPD. The Hall-Shelly (No. 2 Sand) Gas Field was discovered in 1973, at a depth of 11,414'. One of the two Brigham wells in this field is already downhole commingled and carried on the proration schedule of the Home Run (Lower Vicksburg 7) Field. The allowables in this gas field are not subject to Statewide Rule 49(b) because of the small amount of oil produced. The gas allocation formula was suspended in 1982.

All of the wells in the proposed consolidated field produce from an anticline on the western or upthrown side of a northeast-trending fault. There is also faulting within the field. The westernmost well is perforated from 9826' to 9898'. Despite being the shallowest completion in the proposed designated interval it is the only oil well in the three subject fields.

The top of the proposed designated interval is at 9670' on the log of the Palmer State 348 Lease Well No. 2. This depth corresponds to the top of the Lower Vicksburg Formation and the top of geopressure. Downhole commingling the sandstones within this designated interval will not cause crossflow because the entire interval has the same pressure gradient of about 0.9 psi per foot of depth.

All of these lower Vicksburg sandstones in this interval have similar reservoir characteristics and produce compatible water.

According to Brigham, the lower Vicksburg sandstones are lenticular and cannot be easily correlated from well to well. Brigham plans to drill new wells if this application is approved, targeting packages of sand rather than individual sandstones. According to the applicant, porosity can be as much as 22%. Most of the sandstones have less than 20' of net pay though they can be up to 60' thick.

Cumulative gas production for the eleven wells in the subject fields ranges from 132 to 2350 MMCF, and oil or condensate recovery ranges from 14,000 to 158,000 barrels. Total cumulative production is 14,937 MMCF and 668,000 BO. Assuming a hyperbolic decline rate to an abandonment pressure of 1500 psi, the total estimated ultimate production from the existing wells will be 25,760 MMCF and one million barrels of oil.

The calculated drainage areas of the eleven wells in the subject fields range from 10 to 65 acres. The average drainage area is 30 acres and ten of the eleven wells will drain less than 40 acres. Minimum well spacing of 330' from lease lines and 660' between wells is standard for 20 acre optional units.

Brigham testified that the benefits of consolidating these fields include production of otherwise uneconomic sandstones and lowering the economic limit of all of the producing intervals. If this application is denied, Brigham will continue to seek exceptions to Rule 10 to downhole commingle these wells on an individual basis. Rule 10 exceptions would require that each field be tested separately before commingling. Field consolidation will obviate testing of individual sandstones before downhole commingling and the unnecessary paperwork required for Rule 10 exceptions.

These wellbores are producing from high-temperature, high pressure environments which can cause wellbores to fail prematurely. The slim hole casing of these wells prevents conventional dual completions. According to Brigham, if the intervals in these wells have to be produced sequentially instead of together, there is a risk that the wellbores will become unusable before all of the reserves can be produced.

Brigham filed Forms AOF-1 and AOF-2 indicating that it had a market for 100% of the gas that wells in the proposed consolidated field can produce. The only other operator, Exxon Mobil Corporation, has a policy of not signing the Form AOF-2 that would show its wells have 100% market for their gas. Brigham owns a 30% interest in Exxon Mobil's wells and testified that all of the gas from the Exxon Mobil operated wells has 100% market.

Protestants' evidence

The protestants own interests in a tract on the northwest side of the Hall-Shelly (No. 2 Sand)

Field. There is a plugged and abandoned well on this tract, the Margarito Perez No. 1 which was completed at one time in the Hall-Shelly (No. 2 Sand) Field. According to the Commission's records this well was plugged in 1989.

The protestants are concerned because this application will amend the lease line spacing from 467' to 330' and the between-well spacing from 1200' to 660'. They contend that drilling wells closer to their lease line will drain more reserves off their tracts. The protestants also objected to suspending the allocation formula for this field. They claim that allowing wells to produce at capacity will increase the drainage rate of reserves from their tract, according to the protestants. The protestants believe that wells in the existing or combined field should not be allowed to drain more than 40 acres and the applicant's evidence shows that one well will drain 64 acres.

According to Edna Guerra, Brigham took leases from her, promising to drill "good, deep wells" on her property. To date, Brigham has drilled wells only on her neighbor's property. At the least, the protestants believe that some of their acreage should be pooled into the existing wells.

EXAMINERS' OPINION

The examiners are taking official notice of Commission records, indicating the Margarito Perez Well No. 1 on the protestants' acreage was plugged in 1989. This is the only well ever drilled on this acreage and the tract is now unleased. If there are reserves on this tract, the protestants' remedy is to drill a well or lease the property to an operator who will develop the mineral interest on their behalf. Any claims that Brigham favored their neighbor over their interests involving interpretations of contractual rights which are not within the jurisdiction of the Commission and are not relevant to Brigham's current application.

The applicant demonstrated the appropriateness of forty acre density along with twenty acre optional proration units. Wells on twenty acre density, particularly when infill drilled among existing wells, need the flexibility of being able to space wells 330' from lease lines and 660' apart. This is the standard spacing rule applied to twenty acre optional units.

The applicant demonstrated that consolidating the subject fields will prevent waste and increase ultimate recovery. Because the proposed designated interval contains multiple reservoirs, state statutes require a two-factor allocation formula instead of the 100% acreage allocation proposed. At the hearing, the applicant had no recommendation for the two factors nor the percent that should be assigned to them. The examiners propose an allocation formula based 75% on acreage and 25% on gas well deliverability or oil well potential.

FINDINGS OF FACT

1. Notice of this hearing to consolidated the Home Run (Lower Vicksburg), Home Run (Lower Vicksburg 7), and Hall-Shelly (No. 2 Sand) Fields ("subject fields") was issued to all interested persons at least ten (10) days prior to the hearing.
 - a. Notice of this hearing was mailed to operators of wells in the subject fields and to all offset operators and unleased mineral interest owners on May 6, 2004.

- b. Notice of the hearing was published in the *Falfurrias Facts*, a newspaper of general circulation in Brooks County, on May 13, 20, 27 and June 3, 2004.
- 2. Well in the subject fields are interspersed.
- 3. Numerous wells are already downhole commingled in more than one of these fields under exceptions to Statewide Rule 10.
- 4. The Home Run (Lower Vicksburg) Field was discovered at a depth of 12,270' in 1999. It has two wells operated by the applicant, and three wells operated by Exxon Mobil Corporation.
- 5. The Home Run (Lower Vicksburg 7) Field was discovered in 2000 and its field rules specify a designated interval between 11,424' and 11,944' and that allocation be based 95% on deliverability and 5% per well.
- 6. The Home Run (Lower Vicksburg 7) Field has five Brigham wells and two Exxon Mobil wells and three of the wells have already been commingled with the Home Run (Lower Vicksburg) Field.
- 7. The Hall-Shelly (No. 2 Sand) Oil Field was discovered in 1983 at a depth of 11,514', and has only one oil well, operated by Brigham, with a potential of 5 BOPD.
- 8. The Hall-Shelly (No. 2 Sand) Gas Field was discovered in 1973 and one of the two Brigham wells in this field is already downhole commingled with the Home Run (Lower Vicksburg 7) Field.
- 9. Consolidation of the subject fields into a New Field to be known as the Home Run (Vicksburg Cons.) Field will prevent waste and protect correlative rights.
 - a. Field consolidation will allow otherwise uneconomic reserves to be produced and lower the economic limit of all of the producing intervals.
 - b. The wellbores given individual exceptions to Statewide Rule 10 have not exhibited any problems due to downhole commingling.
 - c. Requiring separate exceptions to Rule 10 for each well causes unnecessary mechanical operations because that each field must be tested separately before commingling.
 - d. Field consolidation will eliminate the extra paperwork for the applicant and the Commission required for individual Rule 10 exceptions.
 - e. The slim hole casing of these wellbores prevents conventional dual completions.
 - f. The wellbores in the subject fields produce from high-temperature, high pressure environments that can cause wellbores to fail prematurely.

- g. If the field intervals in these wells have to be produced sequentially instead of together, there is a risk that the wellbores will become unusable before all of the reserves can be produced.
- 10. All of the subject fields operate under Statewide spacing and density rules, with minimum well spacing of 467' from lease lines and 1200' between well, and 40 acre drilling units.
- 11. Proration units of forty acres with optional twenty acre density is appropriate because the wells have drainage areas between 10 and 64 acres.
- 12. Well spacing of 330'-660' is standard for twenty acre optional units and will allow infill wells to be drilled between existing wells.
- 13. The interval from 9670' to 12,550' as shown on the log of the Brigham Palmer State 348 Lease, Well No. 2, covers the productive section in the subject fields.
- 14. Basing allowables for the Home Rule (Vicksburg Cons.) Field 75% on acreage and 25% on deliverability or potential will satisfy the requirement that a field with multiple lenticular reservoirs have two factors in its allocation formula.
- 15. There is a market for 100% of the gas produced from the subject fields and the allocation formula can therefor be suspended.
 - a. The allocation formulas of the Home Run (Lower Vicksburg) Field and Hall-Shelly (No. 2 Sand) Field have been suspended even though the Hall-Shelly (No. 2 Sand) Field is classified as associated.
 - b. Brigham owns a 30% interest in the wells of the only other operator in the subject fields and testified that all of the gas produced from the other operator's wells has 100% market.

CONCLUSIONS OF LAW

- 1. Proper notice was given to all necessary parties as required by applicable statutory and regulatory provisions.
- 2. All things necessary to give the Commission jurisdiction to decide this matter have been performed or have occurred.
- 3. Granting the application to consolidate the Home Run (Lower Vicksburg), Home Run (Lower Vicksburg 7), and Hall-Shelly (No. 2 Sand) Fields into the Home Rule (Vicksburg Cons.) Field with the proposed field rules will prevent waste and protect correlative rights.
- 4. The terms and conditions set forth in the attached Final Order are reasonably necessary.

5. The Home Rule (Vicksburg Cons.) Field meets all the criteria established for suspension of the allocation formula under Statewide Rule 31(j).

EXAMINERS' RECOMMENDATION

Based on the above findings and conclusions, the examiners recommend that the application of Brigham Oil & Gas, L.P. to consolidate the Home Run (Lower Vicksburg), Home Run (Lower Vicksburg 7), and Hall-Shelly (No. 2 Sand) Fields into a New Field to be known as the Home Run (Vicksburg Cons.) Field be **GRANTED**. The proposed field rules with the addition of a second factor to the allocation formula should be approved. The allocation formula should be suspended under the provisions of Statewide Rule Statewide Rule 31(j), as per the attached Final Order.

Respectfully submitted,

Mark Helmueller
Hearings Examiner

Margaret Allen
Technical Hearings Examiner